



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : B65H 18/28	A1	(11) International Publication Number: WO 98/52856 (43) International Publication Date: 26 November 1998 (26.11.98)
--	-----------	---

(21) International Application Number: PCT/US97/17245

(22) International Filing Date: 25 September 1997 (25.09.97)

(30) Priority Data:
08/861,444 22 May 1997 (22.05.97) US

(71) Applicant: MINNESOTA MINING AND MANUFACTURING COMPANY [US/US]; 3M Center, P.O. Box 33427, Saint Paul, MN 55133-3427 (US).

(72) Inventor: MINNEMA, Peter, S.; P.O. Box 33427, Saint Paul, MN 55133-3427 (US).

(74) Agents: LEVINE, Charles, D. et al.; Minnesota Mining and Manufacturing Company, Office of Intellectual Property Counsel, P.O. Box 33427, Saint Paul, MN 55133-3427 (US).

(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, ARIPO patent (GH, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).

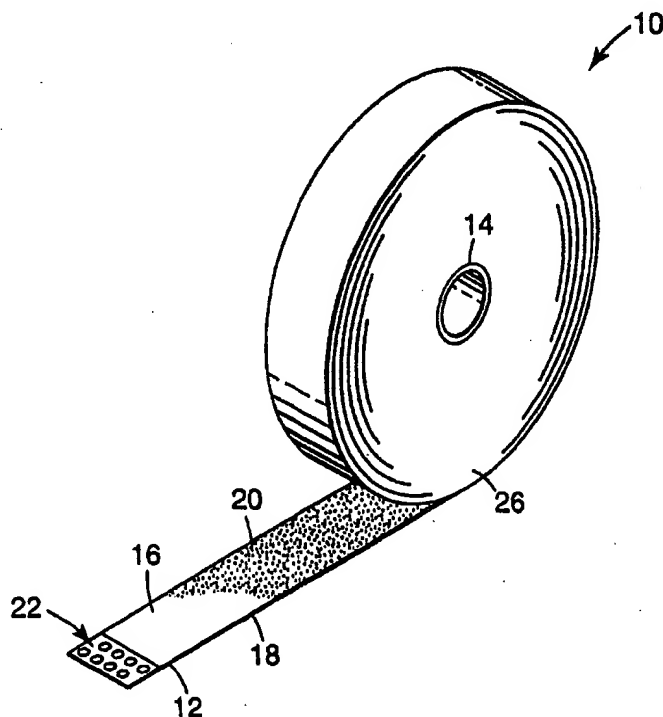
Published

With international search report.

(54) Title: PERFORATED TAB AND TABBED TAPE ROLLS

(57) Abstract

A tab (22) for placement on one end of a length of tape has at least one perforation (24). The tape can have a first end (12), a second end (18), a first side (16), and a second side (18). Adhesive is on the first side, and the tab is located at the first end of the tape and adhered to the first side of the tape. The tab has at least one perforation such that when the tape is wound into a roll, the adhesive accessible through the perforation adheres the tab to the tape to prevent the tab from protruding from the roll while permitting the tab to be grabbed easily to begin unwinding the roll of tape.



FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece	ML	Mali	TR	Turkey
BG	Bulgaria	HU	Hungary	MN	Mongolia	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MR	Mauritania	UA	Ukraine
BR	Brazil	IL	Israel	MW	Malawi	UG	Uganda
BY	Belarus	IS	Iceland	MX	Mexico	US	United States of America
CA	Canada	IT	Italy	NE	Niger	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NL	Netherlands	VN	Viet Nam
CG	Congo	KE	Kenya	NO	Norway	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NZ	New Zealand	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	PL	Poland		
CM	Cameroon	KR	Republic of Korea	PT	Portugal		
CN	China	KZ	Kazakhstan	RO	Romania		
CU	Cuba	LC	Saint Lucia	RU	Russian Federation		
CZ	Czech Republic	LI	Liechtenstein	SD	Sudan		
DE	Germany	LK	Sri Lanka	SE	Sweden		
DK	Denmark	LR	Liberia	SG	Singapore		
EE	Estonia						

PERFORATED TAB AND TABBED TAPE ROLLS

5

TECHNICAL FIELD

The present invention relates to tape rolls. More particularly, the present invention relates to tape
10 rolls with starter tabs.

BACKGROUND OF THE INVENTION

Webs, such as adhesive tapes, are typically formed into rolls for dispensing as well as during the
15 manufacture and conversion of the product. The tape is wound on itself and the last wrap of tape adheres to the underlying wrap, making it difficult to start unwinding the tape from the roll. It is well known to place a tab on the end of the tape, across the adhesive
20 portion of the tape, to deaden that portion and provide a free end that does not adhere to the underlying wrap. This makes it easier to start unwrapping the tape from the roll. Such tabs can be about 2.54 cm (1.0 in) long and span the entire width of the tape.

25 In converting, a jumbo of tape is slit to provide finished product rolls. A tab is used as the beginning of a roll and facilitates the initial unwind. With filament tapes, for example, the tape is packaged using an automated system in which stacks of finished tape
30 rolls are placed in a plastic sleeve and are shrink wrapped. Often the tabbed portion of tape hinders packaging because it protrudes from the roll. One known solution to this problem is to "overtab." Overtabbing involves allowing a portion of non-tabbed
35 tape to extend beyond the tab. This portion of non-tabbed tape adheres to the roll, preventing the tab

from protruding. However, this inhibits the initial unwind of the tape and is not significantly better than a roll without any tab.

U.S. 3,967,624 discloses an adhesive tab for
5 diapers that has a removable perforated cover that is removed for use. This tab is not intended for use with rolls of tape and is not located at the end of a roll.

There is a need for a tab and a tabbed roll that is easy to initially unwind and in which the tab does
10 not protrude from the roll.

SUMMARY OF THE INVENTION

A tab for placement on one end of a length of tape has at least one perforation. The tab can have a
15 series of circular perforations. Each perforation diameter can range from 0.1 cm to 1.0 cm. The series of circular perforations can be formed in two rows that extend for substantially the entire tab width.

A tape can have a first end, a second end, a first
20 side, and a second side. Adhesive is on the first side, and a tab is located at the first end of the tape and adhered to the first side of the tape. The tab has at least one perforation such that when the tape is wound into a roll with the first end of the tape on the
25 outermost portion of the roll, the adhesive accessible through the perforation adheres the tab to the tape to prevent the tab from protruding from the roll while permitting the tab to be grabbed easily to begin unwinding the roll of tape.

30

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a top view of a tab of the invention.

Figure 2 is a perspective view of a tabbed tape of the invention.

35

DETAILED DESCRIPTION

The present invention is a tab and a tape (or other web) having a tab. The tab is placed on one end of a length of tape to facilitate the initial unwinding
5 of the tape from the roll. The tab has at least one perforation which prevents the tab from protruding from the roll. As shown in Figure 1, the tab can have a series of circular perforations. These circular perforations can be formed in one or more rows.

10 Perforations can also be other shapes and patterns.

The tape 10 has a first end 12, a second end 14, a first side 16, and a second side 18. Adhesive 20 is placed on the first side 16 of the tape 10. Thus, the tape 10 can be a type of adhesive tape, such as
15 filament tape, masking tape, household tape, and transparent tape. The tab 22 is located at the first end 12 and is adhered to the first side 16 of the tape 10. The tab 22 has at least one hole or perforation 24 such that when the tape 10 is wound into a roll 26 with
20 the first end 12 of the tape 10 on the outermost portion of the roll 26, the adhesive 20 accessible through the perforations 24 of the tab 22 adheres the tab to the tape. This prevents the tab 22 from protruding from the roll 26 while permitting the tab 22
25 to be grabbed easily to begin unwinding the roll of tape.

The tab 22 can have a width equal to the width of the tape 10. The length of the tab 22 can be about 2.54 cm (1.0 in), which is generally less than 1% of
30 the length of the tape 10. In some embodiments, the tab 22 can be longer than 2.54 cm (1 in). After the tab 22 is placed on the tape 10 it is not intended to be removable from the tape portion to which it adheres.

(During the subsequent use of the tape, whether as a
35 final product or in further conversion, the tab with

the tape portion are removed together, but the tab is not removed from the underlying tape portion.)

In one embodiment, about a maximum of 50% of the tab 22 is perforated. The tab can be made in a roll
5 2.54 cm (1.0 in) wide and 823 m (2700 ft) long. The perforations 24 can be 1.2 cm (0.5 in) wide for the entire length. Smaller hole sizes, such as diameters of 0.476 cm (0.1875 in) also can be used, and diameters ranging from 0.1 cm (0.04 in) to 1.5 cm (0.6 in) can be
10 used. In one application, the perforations 24 are spaced such that there is at least one perforation every 0.9 cm (0.35 in) (center-to-center spacing), with the perforations spaced at least 0.159 cm (0.0625 in) from the free end of the tab and from adjacent rows.
15 The perforations 24 can be located on only the half of the tab adjacent the free end of the tab while the remaining half of the tab has no perforations. This spacing corresponds to the minimum width tape handled in a specific plant location, ensuring that no matter
20 on which width tape the tab roll is used, there will be at least one perforation. The tab 22 is mounted on the tape roll 26, in one embodiment, by placing the tab roll along the crossweb direction of the tape roll.

It is believed that multiple holes 24 on each tab
25 22 are better than only one hole. However, there is believed to be a point in which there are too many holes 24 or too much space through which the adhesive
20 can operate.

For filament tape, the backing, filaments, and
30 adhesive layer are very thick so a larger diameter hole is needed. With filament tape, the holes should not be located across the entire tab or the tab would not be strong enough to be applied to the width of the tape without breaking.

Tabs 22 according to this invention will not hinder the automated packaging process used to package multiple rolls 26 of filament tape. The packaging line therefore will be less likely to be interrupted for
5 problems with inserting multiple rolls of tape into sleeves caused by protruding tabs. Productivity should increase, yielding cost savings. Additionally, all finished tape rolls will be more aesthetically pleasing because the tab will not protrude from the tape roll.

10 Various changes and modifications can be made in the invention without departing from the scope or spirit of the invention. For example, the perforated tab 22 can be used with any type of adhesive tape 10 or similar web in which it is desired to prevent the
15 tabbed portion of the tape from sticking out from the roll 26 while maintaining the ease of removal of the outer wrap of tape from the roll.

CLAIMS

1. A tab 22 for placement on one end of a length
of tape 10, wherein the tab has at least one
5 perforation 24 such that when the tape is wound into a
roll with the first end of the tape on the outermost
portion of the roll the adhesive accessible through the
at least one perforation adheres the tab to the tape to
prevent the tab from protruding from the roll while
10 permitting the tab to be grabbed easily to begin
unwinding the roll of tape.

2. A tape 10 having a first end 12 and a second
end 14, a first side 16 and a second side 18, adhesive
15 20 on the first side, and the tab 22 of claim 1 at the
first end adhered to the first side of the tape.

3. The tab 22 of any of claims 1 and 2 wherein
the tab is a single flat sheet adherable to only one
20 side of the tape.

4. The tab 22 of any of claims 1 and 2 wherein
the tab has a series of circular perforations 24 formed
in two rows.

25

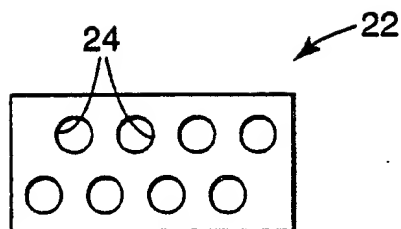
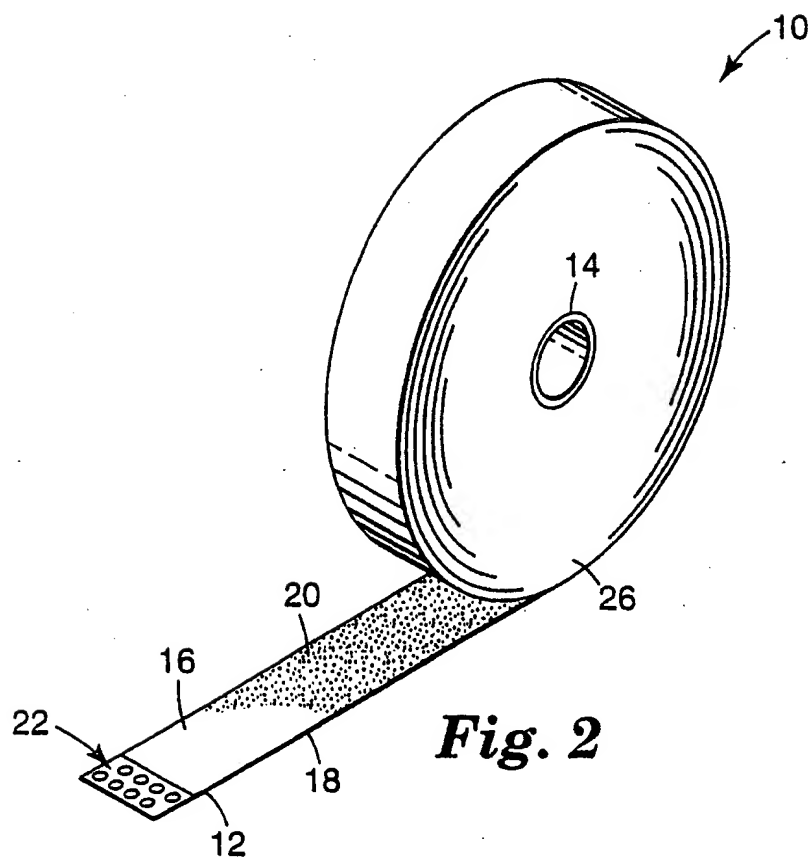
5. The tab 22 of claim 3 wherein each
perforation 22 has a diameter that ranges from 0.1 cm
to 1.0 cm and wherein the series of perforations
extends for substantially the entire tab width.

30

6. The tape 10 of claim 2 wherein after the tab
22 is placed on the tape it is not removable from the
tape, and wherein the length of the tab is less than 1%
of the length of the tape.

35

7. The tape 10 of claim 6 wherein the tab 22 has a width equal to width of the tape.
8. The tape 10 of claim 6 wherein the tape is a
5 type of adhesive tape.

**Fig. 1****Fig. 2**

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 97/17245

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 B65H18/28

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 B65H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 512 462 A (DILLS REUBEN H) 23 April 1985 see the whole document ----	1-3
A	GB 659 615 A (A/S CORWN GUMMED PAPER) 24 October 1951 see the whole document ----	1-8
A	US 2 329 527 A (ATLANTIC GUMMED PAPER CORP.) 14 September 1943 see the whole document -----	1-8

☐

Further documents are listed in the continuation of box C.

☒

Patent family members are listed in annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

26 January 1998

Date of mailing of the international search report

04/02/1998

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 apo nl,
Fax: (+31-70) 340-3018

Authorized officer

Haaken, W

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 97/17245

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4512462 A	23-04-85	NONE	
GB 659615 A		NONE	
US 2329527 A	14-09-43	NONE	